![U-LINX Long Distance USB logo]

USB Extender
Model UEC100M/4

B&B electronics MANUFACTURING COMPANY

707 Dayton Road -- P.O. Box 1040 -- Ottawa, IL 61350 USA
Phone (815) 433-5100 -- General Fax (815) 433-5105
Phone (815) 433-5100 -- **General Fax** (815) 433-5105
Website: **www.bb-elec.com**
Sales e-mail: orders@bb-elec.com -- **Fax** (815) 433-5109
Technical Support e-mail: support@bb.elec.com -- **Fax** (815) 433-5104

European Headquarters
B&B Electronics
Westlink Commercial Park -- Oranmore, Co. Galway, Ireland
Phone +353 91-792444 -- **Fax** +353 91-792445
Website: **www.bb-europe.com**
Sales e-mail: sales@bb-europe.com
Technical Support e-mail: support@bb-europe.com

B&B Electronics Mfg. Co. Inc. -- June 2005

Manual Documentation Number: UEC100M/4-2305
B&B Electronics Mfg Co Inc – 707 Dayton Rd - PO Box 1040 - Ottawa IL 61350 - Ph 815-433-5100 - Fax 815-433-5104 – *www.bb-elec.com*
B&B Electronics – Westlink Commercial Park – Oranmore, Galway, Ireland – Ph +353 91-792444 – Fax +353 91-792445 – *www.bb-europe.com*

Thank you for purchasing the Ulinx Extender. Please read this guide thoroughly before installation.

This document applies to Part Numbers: UEC100M/4, UEC100M/4-EU and UEC100M/4-UK.

FCC Radio Frequency Interference Statement Warning

The Ulinx Extender has been tested and found compliant with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when installed and operated in a commercial environment. The Ulinx Extender generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user guide, may cause harmful interference to radio communications. Operation of the Ulinx Extender in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE Statement

Conforms with European Standard EN 55022/A1 Class A, and EN 50082-1 (IEC 801-2, IEC 801-3, IEC 801-4)

IC Statement

This Class A digital apparatus complies with Canadian ICES-003.

Manual Documentation Number: UEC100M/4-2305
B&B Electronics Mfg Co Inc – 707 Dayton Rd - PO Box 1040 - Ottawa IL 61350 - Ph 815-433-5100 - Fax 815-433-5104 – *www.bb-elec.com*
B&B Electronics – Westlink Commercial Park – Oranmore, Galway, Ireland – Ph +353 91-792444 – Fax +353 91-792445 – *www.bb-europe.com*

Table of Contents

Introduction

This manual is intended to assist IT professionals install the Ulinx Extender model . The instructions in this guide assume a general knowledge of computer installation procedures, familiarity with cabling requirements, and some understanding of USB devices.

📝 **NOTE:** Notes give additional information that could make installation easier.

Ulinx Extender Product Contents

When you open your Ulinx Extender for the first time you should find the following items:

- Ulinx Extender User Guide
- Local Unit
- Remote Unit
- AC power adapter
- USB cable (2m long)

To complete the installation, you will also require the following items that are not included with the product:

- USB compatible computer
- USB device
- Category 5 Unshielded Twisted Pair (UTP) cable with two RJ45 connectors (if using surface cabling),
  OR,
  Category 5 UTP cabling with two information outlets and two Category 5 UTP patch cords with RJ45 connectors (if using premise cabling)

📝 **NOTE**: The maximum length of the Category 5 UTP cable, including patch cords, must not exceed 100m.
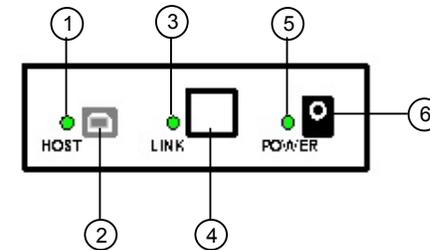
About the Ulinx Extender

The Ulinx Extender breaks the five-meter distance barrier for the connection of USB peripheral devices and allows users to enjoy the benefits of USB technology beyond the desktop. With the Ulinx Extender, USB devices can be located up to 100 meters from the host computer. In addition, the Ulinx Extender can supply power to remote low-power or high-power USB devices.

The Ulinx Extender is composed of two individual units, the Local Unit and the Remote Unit.

The Local Unit

The Local Unit connects to the host computer using a conventional USB cable. Depending on your needs, it also connects to a power outlet through an AC power adapter.

Front View

1 Host LED	**4** Link Port (RJ45)
2 Host Port (USB Type B)	**5** Power LED
3 Link LED	**6** Power connector

📝 **NOTE:** The power adapter for the Ulinx Extender can be connected to either the Local Unit or to the Remote Unit, as convenient. With the Ulinx Extender UEC100M/4, the location of the power adapter also depends on whether you are connecting high-power or low-power USB devices. (See Power Handling on page 4).

The Remote Unit

The Remote Unit connects to the USB device using a conventional USB cable. Depending on your needs, it also connects to a power outlet through an AC power adapter. The Remote Unit of the UEC100M/4 allows you to connect up to four USB devices.
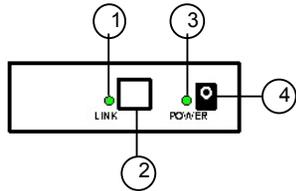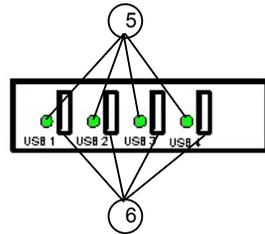
Front View　　　　　　　　**Rear View**

1 Link LED

2 Link Port (RJ45)

3 Power LED

4 Power connector
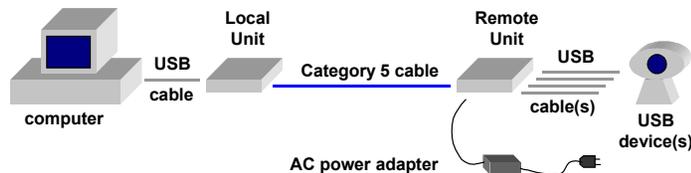
5 Device LED(s)

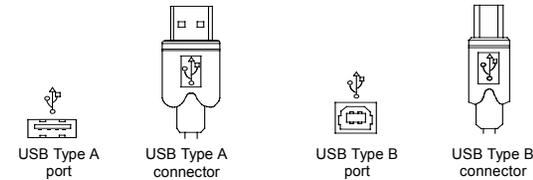**6** Device Port(s) (USB Type A)

Network Cabling

The Local Unit and Remote Unit are interconnected by up to 100 meters of Category 5 Unshielded Twisted Pair (UTP) cabling. The UTP cabling must have a straight-through conductor configuration, with no crossovers, and must be terminated with 8-conductor RJ45 connectors at both ends.

📝 **NOTE:** Category 5 UTP cabling is the standard data communications cable installed in most commercial and some residential buildings.

USB Cables

USB cables have two distinct connectors. The Type A connector is used to connect the cable from a USB device to the Type A port on a computer or hub. The Type B connector is used to attach the USB cable to a USB device.

USB Type A port　　USB Type A connector　　USB Type B port　　USB Type B connector

Power Handling

Some USB devices are powered directly from the USB and do not require individual power supplies. These devices are called bus-powered devices. The Ulinx Extender can provide power to these devices so they can be operated remotely.

Bus-powered devices are further divided into low-power and high-power categories. Low-power devices are allowed to draw up to 100 mA from the USB. Typical examples include mice, joysticks, and keyboards without hubs. High-power devices are allowed to draw up to 500 mA from the USB. Typical examples include cameras and keyboards with hubs. To determine if a device is high-power or low-power, consult the user documentation for the device.

The Ulinx Extender UEC100M/4 can supply power to both low-power and high-power devices when configured as follows:

- To operate up to four low-power devices, connect the power adapter to the Local Unit or the Remote Unit, as convenient.
- To operate up to four high-power devices, connect the power adapter to the Remote Unit.

📝 **NOTE**: Devices with their own power source are usually considered to be low-power devices from a USB perspective.

Compatibility

The Ulinx Extender complies with USB 1.1 specifications governing the design of full speed USB devices. However, B&B Electronics does not guarantee that all full speed USB devices are compatible with the Ulinx Extender UEC100M/4.

Before You Begin

Before you can install the Ulinx Extender, you need to prepare your site.

1. Determine where the host computer is to be located and set up the computer.

2. Determine where you want to locate the USB device(s).

3. Decide whether the power adapter is to be connected to the Local Unit or the Remote Unit (see the discussion of power handling on page 4).

4. If you are using surface cabling, ensure you have enough Category 5 UTP cabling to connect the two locations.

OR

If you are using premise cabling, ensure Category 5 UTP cabling is installed between the two locations, with Category 5 information outlets located near both the computer and the USB device.

Installing the Local Unit

1. Place the Local Unit near the host computer.

2. If the power adapter is to be located with the Local Unit:

   a) Plug the power adapter into a suitable AC outlet.

   b) Connect the power adapter to the Local Unit.

3. Plug the Type B connector on the USB cable (included) into the Host port on the Local Unit.

4. Plug the Type A connector on the USB cable into the USB port on the computer.

Installing the Remote Unit

1. Place the Remote Unit near the USB device(s).

2. If the power adapter is to be located with the Remote Unit:

   a) Plug the power adapter into a suitable AC outlet.

   b) Connect the power adapter to the Remote Unit.

Connecting the Local Unit to the Remote Unit

NOTE: To ensure proper operation, we recommend that only Category 5 or better, Unshielded Twisted Pair (UTP) cabling be used to connect the Local Unit to the Remote Unit. The UTP cabling must have a straight-through conductor configuration with no crossovers, and must be terminated with 8-conductor RJ45 connectors at both ends.

With Surface Cabling

1. Plug one end of the Category 5 UTP cabling (not included) into the Link port on the Local Unit.

2. Plug the other end of the Category 5 UTP cabling into the Link port on the Remote Unit.

With Premise Cabling

1. Plug one end of a Category 5 patch cord (not included) into the Link port on the Local Unit.

2. Plug the other end of the patch cord into the Category 5 information outlet near the host computer.

3. Plug one end of the second Category 5 patch cord (not included) into the Link port on the Remote Unit.

4. Plug the other end of the second patch cord into the Category 5 information outlet near the USB device.

NOTE: The maximum length of the Category 5 UTP cable, including patch cords, must not exceed 100 meters.

Checking the Installation

1. Check that the Power LEDs on the Local Unit and Remote Unit are both on.
2. Check that the Link LEDs on the Local Unit and Remote Unit are both on.
3. Check that the Host LED on the Local Unit is on.
4. On the host PC, open the Device Manager applet. Expand the entry for Universal Serial Bus controllers by clicking the + sign. If the Ulinx Extender has been installed correctly you should find it listed as a Generic USB Hub.

Connecting a USB Device

1. Install any software required to operate the USB device(s). Refer to the documentation for the device(s), as required.

2. Connect the USB device to the Device port on the Remote Unit.

3. Check that the Device LED on the Remote Unit is on.

Troubleshooting

The following table provides troubleshooting help. The topics are arranged in the order in which they should be executed in most situations. If you are unable to resolve the problem after following these instructions, please contact technical support for further assistance (see page 12).

Symptoms/Cause	*Remedy*
All LEDs on Local Unit and Remote Unit are off. **Cause:** The Ulinx Extender is not receiving power from the adapter	1. Ensure that the power adapter is connected to the Local Unit or Remote Unit 2. Check that the adapter is connected to a live source of electrical power
Power LED on one unit is on, power LED on other unit is off. **Cause:** There is no connection between the Local Unit and Remote Unit.	1. Ensure that a Category 5 UTP cable with straight-through conductors is connected between the Local Unit and Remote Unit. 2. Connect a short Category 5 patch cord between the Local Unit and Remote Unit. Recheck the operation of the system.
Link LEDs on Local Unit and Remote Unit are off. **Cause:** There is no connection between the Local Unit and Remote Unit.	3. Ensure that a Category 5 UTP cable with straight-through conductors is connected between the Local Unit and Remote Unit. 4. Connect a short Category 5 patch cord between the Local Unit and Remote Unit. Recheck the operation of the system.
USB Hub Power Exceeded message is displayed by the computer. **Cause:** The USB device connected to the Remote Unit is a high-power device and the power adapter is connected to the Local Unit	5. Move the power adapter from the Local Unit to the Remote Unit.

Symptoms/Cause	Remedy
Link LED on Local Unit is on; Host LED on Local Unit is off. **Cause:** a) The computer is not functioning. b) The Local Unit is not connected to the computer. c) The computer does not support USB hubs. d) The Ulinx Extender is malfunctioning.	1. Disconnect all USB devices from the Remote Unit. 2. Disconnect the Local Unit from the computer. 3. Disconnect and then reconnect the power adapter to the Ulinx Extender. 4. Reconnect the Local Unit to the computer. 5. In the Universal Serial Bus controllers section of Device Manager, check that the Ulinx Extender is recognised as a "Generic USB Hub". 6. If the Ulinx Extender is not recognised, contact technical support for assistance.
A device is connected to Remote Unit and the corresponding Device LED is off **Cause:** a) The USB device is malfunctioning. b) The computer does not recognise the USB device. c) The application software for the device is not operating. d) The Ulinx Extender is malfunctioning.	1. Disconnect the Ulinx Extender from the computer. 2. Connect the USB device directly to the USB port on the computer. 3. If the device does not operate properly, consult the user documentation for the device. 4. If the device operates properly when directly connected to the computer, connect another device (of a different type) to the Ulinx Extender. Connect the Ulinx Extender to the computer. 5. If the second device does not operate, the Ulinx Extender may be malfunctioning. Contact technical support for assistance. 6. If the second device does operate properly, the first device may not be compatible with the Ulinx Extender. Contact technical support for assistance.

Symptoms/Cause	Remedy
All LEDs on both the Local Unit and Remote Unit are on but the device does not operate correctly **Cause:** a) The USB device is malfunctioning. b) The computer does not recognise the USB device. c) The application software for the device is not operating. d) The Ulinx Extender is malfunctioning.	1. Disconnect the Ulinx Extender from the computer. 2. Connect the USB device directly to the USB port on the computer. 3. If the device does not operate properly, consult the user documentation for the device. 4. If the device operates properly when directly connected to the computer, connect another device (of a different type) to the Ulinx Extender. Connect the Ulinx Extender to the computer. 5. If the second device does not operate, the Ulinx Extender may be malfunctioning. Contact technical support for assistance. 6. If the second device does operate properly, the first device may not be compatible with the Ulinx Extender. Contact technical support for assistance.

Specifications

Range (over Category 5 UTP cable)	100 meters (330 ft)
USB device support	Full speed devices (12 Mb/s) Low speed devices (1.5 Mb/s)
USB hub support	Any single chain can include four USB hubs and one Ulinx Extender UEC100M/4, in any order.
Power available to USB device at Remote Unit (Ulinx Extender UEC100M/4)	4 x 100 mA (when powered at Local Unit) 4 x 500 mA (when powered at Remote Unit)
USB cable	2 meters (6.6 ft)
Local Unit connector (upstream)	1 x USB Type B
Local Unit connector (downstream)	1 x RJ45
Remote Unit connector (upstream)	1 x RJ45
Remote Unit connector (downstream)	4 x USB Type A
Local Unit dimensions	10.7 x 8.4 x 3.4 cm 4.3 x 3.4 x 1.4 in
Local Unit weight	0.3 kg (0.6 lb)
Remote Unit dimensions	10.7 x 8.4 x 3.4 cm 4.3 x 3.4 x 1.4 in
Remote Unit weight	0.3 kg (0.6 lb)
Total system shipping weight	1.1 kg (2.4 lb)
Temperature range	4°C to 40°C
Regulatory testing	FCC, CE Class A

Contacting Technical Support

If you require technical assistance, send an e-mail message to:
> support@bb-elec.com

To help us serve you better, please include the following information with your technical support request:

- Description of the problem
- Host computer make and model
- Type of operating system installed (e.g. Win98, Mac OS X, etc.)
- Part number and serial number of the Local Unit and the Remote Unit
- Make and model of any USB device attached to the Ulinx Extender
- Description of the installation